From: Mark Thomson <thomson@hep.phy.cam.ac.uk>
Subject: Joint DUNE/LBNF Message – Beamline Update
Date: September 6, 2016 at 3:16:55 PM EDT
To: <dune-collab@fnal.gov>
Cc: "Christopher J. Mossey" <cmossey@fnal.gov>, Elaine G Mccluskey <mccluskey@fnal.gov>, Andre Rubbia <Andre.Rubbia@cern.ch>, Joseph Lykken <lykken@fnal.gov>

Dear colleagues,

The planning for the DUNE experiment and supporting LBNF project is progressing well. As we communicated last week, the U.S. Department of Energy has approved the start of construction work to support the caverns for the first two detectors at the far site at Sanford Underground Research Facility in Lead, SD.

Another important component of the program is the LBNF neutrino beamline, to be operational in the 2026 timeframe. In support of this timeline, the baseline design for the neutrino beam has been reviewed by the DUNE Beam Optimization Task Force (BOTF) and the Accelerator/Beamline Interface Working Group.

Additionally, over the past four months, we evaluated NuPIL (Neutrinos from PIon beam Line), an innovative potential alternative approach for the LBNF beamline. The NuPIL concept has been presented at a general collaboration meeting and to multiple BOTF and Accelerator/Beamline interface working group meetings. In August, the NuPIL concept was presented to the Experiment-Facility Interface Group (EFIG).

Based on these efforts, various inputs from the collaboration, and an EFIG recommendation, LBNF and DUNE managements have decided not to pursue NuPIL or other alternative studies to the optimized LBNF wide-band beam design.

This decision was based on a number of factors, including open questions regarding achievable physics reach, technical feasibility and risks, and concerns about alternative beam designs' energy

tune-ability. An assessment indicated that bringing NuPIL or other approaches to the necessary conceptual level would conservatively add approximately two years to the current project execution schedule. Overall, these reviews have reconfirmed the strength of the optimized LBNF beamline design.

Moving forward, we will transition to the next phase of beamline development: completing the conceptual design for the components of the optimized beamline. This effort must complete within the next ~12 months to begin the preliminary beamline design in October 2017, followed by completion of the technical design report by June 2019.

Sincerely,

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